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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/566,949

02/03/2006

Shigeru Ichihara

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EXAMINER

LEADER, WILLIAM T

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

05/13/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/566,949	Applicant(s) ICHIHARA ET AL.	
	Examiner WILLIAM T. LEADER	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-11 is/are pending in the application.
- 4a) Of the above claim(s) 7-11 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 7, 2009, has been entered.

2. Claim 1 has been amended. Claim 2 has been canceled. Claims 1 and 3-6 are under consideration. Claims 7-11 remain withdrawn from consideration.

3. Applicant's amendment of claim 1 is deemed to have overcome the rejection under 35 U.S.C. 102 over Daimon et al.

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

5. Claims 1 and 3-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6. Claim 1 is directed to a solution which is a composition of matter. Applicant recites that the solution is “capable of depositing FePt or FePtCu when plating using the solution is performed.” This limitation is interpreted to be a limitation which is intended to limit the composition of the claimed solution. However, the scope of this limitation is considered to be indefinite.

7. As discussed in the previous office action, whether a constituent in a plating solution is deposited depends on the manner in which the solution is used. It is possible to have a solution which contains ions of two different metals, but depending on the conditions employed such as applied voltage only one of the metals rather than both is actually deposited. Thus, for one set of conditions the solution may be described as being capable of depositing the alloy but for a different set of conditions the same solution could be described as not being capable of depositing the alloy. The manner in which the function of depositing FePt or FePtCu limits the claimed solution is not clear.

Claim Rejections - 35 USC § 103

8. Claims 1 and 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daimon et al (US 2004.0074336) in view of Commander et al (US 5,435,898).

9. The Daimon et al patent is directed to the production of metal particles for use in magnetic recording. The particles may comprise iron, platinum and copper. See ex. 41 – ex. 45 in Table 2 on page 13. In example 41 the composition was Fe₄₀Pt₄₅Cu₁₅. In the process of making the particles, Daimon creates a solution in which a salt or a complex of Fe, a salt or a

complex of Pt, and a salt or a complex of Cu are dissolved in alcohol alone, water and an alcohol, or an alcohol and an organic solvent. See page 4, paragraphs [0049] - [0053].

Paragraph [0056] discloses that the iron complex may be iron (III) citrate n-hydrate, showing that citrate was used as a complexing agent. In example 41, 0.62 millimoles of an iron (III) complex and 0.62 millimoles of a platinum (II) complex were added to 100 ml of ethylene glycol. In terms of moles per liter, the concentration would have been 0.0062 mol/l of iron complex and 0.0062 mol/l of platinum complex. The iron complex and platinum complex are present in equal molar amounts so the ratio would have been 1:1.

10. Claim 1 as amended differs from Daimon et al by reciting tartaric acid as a complex agent. As noted above, Daimon utilizes citrate as a complex agent. The Commander et al patent is directed to electroplating baths for depositing alloys such as zinc-iron. See the abstract.

Commander et al teach the inclusion of a chelating (complexing) agent in an effective amount to maintain the metals in the bath in solution, e.g., to dissolve the required amount of iron and other alloy ingredients in the bath. Examples of suitable chelating agents include hydroxy carboxylic acids and salts such as citrates, and tartrates. See column 4, lines 47-64.

11. The prior art is indicative of the level of skill of one of ordinary skill in the art. It would have been obvious at the time the invention was made to have utilized tartaric acid rather than a citrate as the complexing agent in the solution of Daimon because as taught by Commander it is known that hydroxyl carboxylic acids and salts such as citrates and tartrates function as complexing agents for iron ions, and that tartaric acid is an equivalent of citric acid.

12. With respect to claim 3, the concentration of Fe disclosed in example 41 of Daimon falls within the range recited by applicant. With respect to claim 4, Daimon discloses that preparation of iron-containing solutions at a pH of 9-12 was known. See paragraph [0014]. The art recognizes pH as a result-effective variable. Choice of a value of pH from within a range recognized as being useful would have been obvious. With respect to claim 5, the solution of example 41 contained both a Fe complex and a Pt complex. With respect to claim 6, example 41 additionally contained a copper complex.

13. Claims 1 and 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over the Rhen et al article "Electrodeposited FePt films" in view of Commander et al (US 5,435,898).

14. The Rhen et al article discloses a plating solution which comprises ionic Fe in the form of 0.1 M/l FeSO_4 and ionic Pt in the form of 1mM/l H_2PtCl_6 . When the plating solution was used, a composition consisting of Fe and Pt was formed. The composition of the deposited films depended on the current density. Values of about 20 mA/cm² resulted in a 50% Fe - 50% Pt composition in the films.

15. The solution recited in claim 1 as amended differs from the solution of Rhen et al by additionally comprising a "complex agent", and by reciting a molar ratio of the ionic Fe to the ionic Pt of from 0.75 to 3. By reciting the deposition of an equal amount of Fe and Pt, a solution with a molar ratio of roughly 1:1 of iron to platinum would have been suggested. The Sallo et al patent is directed to a plating bath for electrodeposition of ferromagnetic materials. The plating bath contains an iron salt such as ferrous chloride. Sallo et al teach that since hydrated oxides of

iron precipitate even in acid baths, it is necessary to utilize a complexing agent to maintain the plating bath in solution. The preferred complexing agent is ammonium citrate (column 2, lines 16-21).

16. As stated above, the Commander et al patent is directed to electroplating baths for depositing alloys such as zinc-iron and discloses the equivalence of citrates and tartrates as complexing agents. It would have been obvious at the time the invention was made to have included a complex agent such as a tartrate in the FePt plating solution of Rhen because it would have been effective in maintaining the iron in solution as taught by Sallo or Commander and because tartrate is known to be an effective complexing agent as shown by Commander, and the equivalent of the citrate used by Sallo.

17. With respect to claim 3, the 0.1 M/l concentration of FeSO_4 disclosed by Rhen et al falls within the range recited by applicant.

18. Instant claim 4 recites a pH range of 5.0 – 10.5. As noted above, Sallo et al disclose that hydrated oxides of iron begin to precipitate even in acid solutions. Commander et al teach that the chelating agent should complex metal ions to an electrodepositable extent in a strong alkalinity of a pH of above 13 (column 4, lines 53-56). Thus, it is recognized in the art that iron-containing alloys may be deposited in baths with a pH ranging from acidic to strongly alkaline. Choice of an appropriate pH for the particular alloy being deposited from within the recognized range would have been a matter of routine optimization.

19. With respect to claim 5, the tartrate suggested by Commander would have served to complex with platinum as well as iron so that both an iron complex and a platinum complex would have been formed.

Response to Arguments

20. Applicant's arguments filed April 7, 2009, have been fully considered but they are not persuasive. At page 5 of the Remarks, applicant notes that claim 1 has been rephrased for clarification. However, for the reasons given above, the scope of claim 1 is considered to remain unclear.

21. At page 6 of the Remarks, applicant argues that Daimon does not disclose or suggest a solution which includes tartaric acid as a complex agent in addition to ionic Fe and Pt. As noted above, Daimon discloses the creation of a solution in which a salt or a complex of Fe, a salt or a complex of Pt, and a salt or a complex of Cu are dissolved in alcohol alone, water and an alcohol, or an alcohol and an organic solvent, and discloses that the iron-complexing agent is a citrate. Based on the disclosed equivalence of tartaric acid and citric acid as a complexing for iron in Commander, the substitution of a tartrate for a citrate would have been obvious as explained above.

22. Applicant additionally argues that neither Sallo nor Commander discloses or suggests a tartaric acid complex agent for use with ionic iron or platinum. This argument is not convincing. At column 4, lines 62-63 Commander discloses the equivalent use of citrates and tartrates as complexing agents.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM T. LEADER whose telephone number is (571) 272-1245. The examiner can normally be reached on Mondays-Thursdays and alternate Fridays, 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William Leader/
May 7, 2009

/PATRICK RYAN/
Supervisory Patent Examiner, Art Unit 1795